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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,005	02/03/2004	Heike Windisch	Mo-6790D/LeA 35,220D	4098
34947	7590	04/18/2005	EXAMINER	
LANXESS CORPORATION			ASINOVSKY, OLGA	
111 RIDC PARK WEST DRIVE			ART UNIT	
PITTSBURGH, PA 15275-1112			PAPER NUMBER	

1711

DATE MAILED: 04/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/772,005

Applicant(s)

WINDISCH ET AL.

Examiner

Olga Asinovsky

Art Unit

1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 February 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 5-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 02/03/2005.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 5-7 and 9-15 rejected under 35 U.S.C. 102(b) as being anticipated by Hattori et al U.S. Patent 4,906,706.

Hattori discloses a process for producing a modified conjugated diene polymer in an inert organic solvent and in the presence of a catalyst system including a rare earth metal compound, an organoaluminum compound and a Lewis acid, column 2, lines 3-50. The process includes steps of (I) polymerizing a conjugated diene for making a reactive polymer, and (II) reacting the resulting reactive polymer with a modifying compound. The conjugated diene used in the preparation of the reactive polymer includes 1,3-butadiene, 1,3-pentadiene, column 4, lines 65-68, for the present claim 6. The monomer concentration (conjugated diene) in the polymerization solvent could be up to 50 wt.%, column 5, lines 44-45. A polar monomer (e), (f) and (g) could be present in the ratio of the polar monomer to a rare earth metal compound (a) from 01 to 100, column 6, lines 3-6, column 7, lines 23-24, column 8, lines 12-13. The conversion of a conjugated diene and a polar monomer in the present claim 5, step (i) and step (ii) is inherent in Hattori invention. A modifying compound is a polar monomer such as isocyanate or thioisocyanate compound, carbon disulfide or epoxy compound, column

Art Unit: 1711

22, lines 43-50, for the present claims 5 and 7. The modified conjugated diene polymer obtaining in this invention is a high cis-1,4-diene polymer, having the cis-1,4 content of at least 70% or more, column 8, lines 34-41, for the present claim 5. The step (I) is the same as step (i) in the applicants' claim 5. The catalyst system is readable in applicants' claim 5 (including ((A), (B) and (C)) compounds. The step (II) is readable in applicants' step (ii). After the completion of the modification reaction, the solvent is removed; and the modified polymer is then dried, column 8, lines 25-29, for the present claim 5, step (iii). The modified conjugated diene polymer can be a block copolymer, column 8, lines 49-52. The polar modifying monomer (e) can be used at any ratio, column 6, line 3, for the present claim 5. The modified conjugated diene polymer (I) can be used alone or in blend with 80% by weight of natural rubber (II) and/or other rubber (III), column 9, lines 50-63. Adding addition of conjugated diene and polar monomer (for the present claim 5, step (iv)) would be expected in Hattori'706 because the modified conjugated polymer is still reactive and a continuous polymerization of conjugated diene and polar monomer is expected, column 9, lines 50-62. The resulting modified conjugated polymer or block copolymer can be used for the production of a vulcanized rubber for tread tire, column 10, lines 4-8m, for the present claim 15.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 1711

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hattori et al U.S. Patent 4,906,706.

5. Hattori does not disclose the specified polar monomers in the present claim 8. However, it would have been obvious to one of ordinary skill in the art to consider that a polar monomer in Hattori can include a caprolactone, valerolactone or butyrolactone or their derivatives since any polar monomer is working within the same expectation for making a modified conjugated polymer or block copolymer in the process in Hattori's invention, and the selection of specified polar monomer is depending on the desired property and utilities of using the resulting block copolymer.

References have been considered.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Olga Asinovsky whose telephone number is 571-272-1066. The examiner can normally be reached on 9:00 to 5:30 pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1711

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Olga Asinovsky  
Examiner  
Art Unit 1711

O.A.  
April 11, 2005



James J. Seidleck  
Supervisory Patent Examiner  
Technology Center 1700